

### **REMARKS**

In the Office Action dated February 16, 2010, claims 9, 10, and 13 were pending, with claim 9 being in independent form. Claims 9 and 10 were rejected for obviousness under 35 U.S.C. § 103(a) over U.S. Patent No. 4,107,928 to Kelly et al. ("Kelly") in view of U.S. Patent No. 3,888,084 to Hawkins ("Hawkins"). Claim 13 was rejected for obviousness under 35 U.S.C. § 103(a) over Kelly in view of U.S. Patent No. 4,586,338 to Barrett et al. ("Barrett"). The Examiner's comments have been carefully considered, and Applicant respectfully traverses these rejections.

Claims 10 and 13 have been cancelled herein, obviating the rejections made to these dependent claims.

Claim 9 is currently amended to include limitations directed to the feature of the present invention that the hydraulic motor may be switched by a control unit to operate in a hydraulic pump mode to store retardation energy. Claim 9 now recites the following limitations: "wherein the hydraulic motor is adapted to act as a hydraulic pump in a hydraulic pump mode," and "wherein a control unit is adapted to switch the hydraulic motor into the hydraulic pump mode for storing retardation energy in the apparatus." Support for these amendments may be found in the specification, for example, on page 15, line 36 – page 17, line 2, and in Fig. 3.

Kelly and Hawkins, alone or in combination, fail to teach or suggest at least this feature of the present invention. Kelly discloses an energy conversion device (110/130) with a hydraulic circuit for converting heat energy from water to mechanical energy. *See* Kelly, at columns 1-2 and Fig. 2. Hawkins generally discloses a combustion engine and provides for delivering the heat from the combustion engine to a refrigerant for conversion into useful work. *See* Hawkins, at col. 2, line 66 – col. 3, line 7. Even if combined as the Examiner suggests, these references would at most merely teach an apparatus where the heat from a combustion engine is converted to mechanical energy via a hydraulic circuit.

As noted above, in addition to heat energy from a combustion engine, the present invention involves the conversion and storage of retardation energy, which is emitted when the vehicle is in motion and the gas pedal is not being depressed, or during braking. As set forth in currently amended claim 9, the hydraulic motor that is used to convert and store the thermal


energy from the combustion engine may be alternatively operated as a hydraulic pump. When certain operating conditions are met, the controller 27 may switch the operating mode of the hydraulic motor to operate as a hydraulic pump. *See* page 15, line 36 – page 17, line 2, and Fig. 3. In this manner, the retardation energy that is emitted is not lost but instead harnessed, and may be stored in the pressure bottles for subsequent use in powering the hydraulic motor. The presently claimed combination of utilizing heat energy in addition to retardation energy results in substantial energy efficiency improvements. *See* page 17, line 4 – page 18, line 9.

#### CONCLUSION

For the foregoing reasons, Applicant respectfully requests that the rejections be withdrawn, and that currently amended claim 9 be allowed.

Respectfully submitted,

THE WEBB LAW FIRM

By  \_\_\_\_\_

Daniel H. Brean  
Registration No. 59,352  
Attorney for Applicant  
436 Seventh Avenue  
700 Koppers Building  
Pittsburgh, PA 15219  
Telephone: (412) 471-8815  
Facsimile: (412) 471-4094  
E-mail: [webblaw@webblaw.com](mailto:webblaw@webblaw.com)